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Survival and Recurrence Pattern after Curative Resection of Pancreatic Cancer

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Background/Aims: The only hope for the cure of pancreatic adenocarcinoma is curative resection. However, the rate of recurrence after curative resection is higher than 50%. The aim, of this study were to analyze survival and the factors influencing survival and to evaluate the recurrence rate and pattern after curative resection of pancreatic adenocarcinoma. **Methods:** The records of 250 patients who were diagnosed as pancreatic cancer were reviewed retrospectively. We classified the patients into 3 groups (curative resection, non-curative resection, and conservative treatment) and analyzed the factors influencing survival, recurrence rate, and recurrence pattern after curative resection. **Results:** Curative resection were performed in 31 (12.4%) of 250 cases. The patients with curative resection was significantly prolonged median survival time than those without non-curative resection or with conservative treatment. The factors influencing survival rate after curative resection were age, lymph node involvement, and disease status. Twenty-five of the 31 cases with curative resection had recurrences after 10 months. Local retroperitoneal recurrence was 69%. Liver metastasis and lymph node metastasis were occurred in 61% and 54%, respectively. **Conclusions:** The survival time of the patients with pancreatic adenocarcinoma was prolonged in the cases of curative resection compared with the cases of non-curative resection or conservative treatment. However, most cases after curative resection showed recurrence. Thus, early diagnosis and early treatment should be needed to prolong the survival time of the patients with pancreatic adenocarcinoma. **(Korean J Gastroenterol 2001;38:276-283)**

Key Words: Pancreatic adenocarcinoma, Curative resecton, Survival, Recurrence

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: , 120-752, 134 10%³⁻⁶
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2)

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Kaplan-Meier

p 0.05

Windows-SPSS release

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1.

1991	1	1	1996	12	31
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가	가	250
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1.

(ductal adenocarcinoma)

250 168 , 82

2.05:1	.	31-85	60.4
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60 가 85 (34.0%) 가 50 70
(28%), 70 48 (19.2%) (Table 1).

1-7 cm 3.3 cm .

1 10 (4%), 2 41 (16.4%), 3 71 (28.4%),
4 128 (51.2%) 가

.	1	16%
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5 4% 가 (Fig. 1).

2.

가

31 (12.4%),

33 (13.2%),

Table 1. Age and Sex Distribution in Patients with Pancreatic Cancer

Age (yr)	Male	Female	Total(%)
30-39	4	3	7 (2.8)
40-49	22	14	36 (14.4)
50-59	51	19	70 (28.0)
60-69	63	22	85 (34.0)
70-79	26	22	48 (19.2)
80-89	2	2	4 (1.6)
Total	168	82	250 (100)

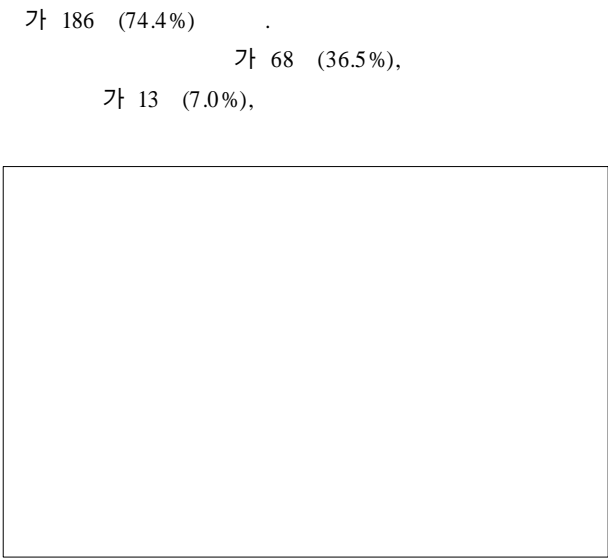


Fig. 1. Overall survival in patients with pancreatic cancer. One year survival rate and 5 year survival rate of the total 250 patients were 16% and 4%, respectively.



Fig. 2. Kaplan-Meier survival analysis of patients according to the treatment modality. Median survival time of the patients with curative resection was 14 months, non-curative resection 9 months, and conservative treatment 3 months. So there was significant differences among the groups (curative resection vs. non-curative resection vs. conservative care, respectively).

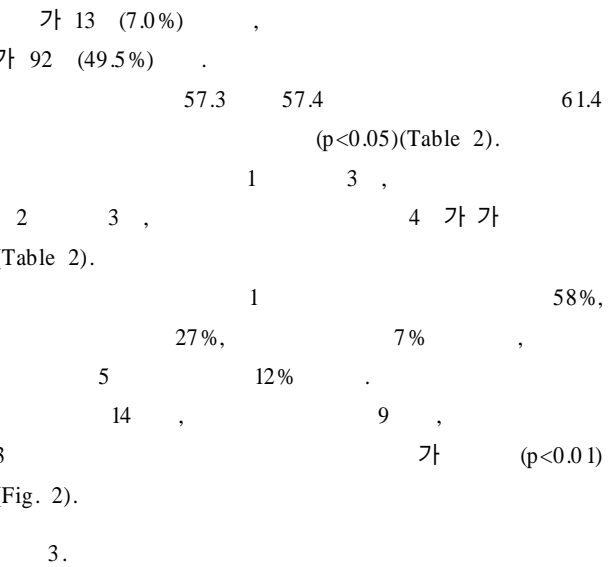


Fig. 3. Kaplan-Meier survival analysis of the effect on survival according to the age in patients with curative resection of pancreatic cancer. Younger patients show longer median survival time than older patient significantly.

Table 2. Characteristics among Groups according to the Treatment Modality.

Variables	Curative resection	Non-curative resection	Conservative treatment*	Total
No. of cases	31 (12.4%)	33 (13.2%)	186 (74.4%)	250
Mean age (yr)	57.3± 15.3 [†]	57.7± 12.5	61.4± 13.2	60.4± 16.2
Sex (M:F)	17:14	23:10	128:58	168:82
Stage I				10
Stage II	10		24 [‡]	41
Stage III	4	13	34 [‡]	71
Stage IV	17	20	128 [‡]	128

Age is expressed as mean±SD.

*Chemotherapy, 68 cases; radiotherapy, 13 cases; chemo & radiotherapy, 13 cases; no treatment, 92 cases.

[†] p < 0.05.

[‡] staging by CT scan.

Table 3. Factors Influencing Survival after Curative Resection of Pancreatic Cancer

	Variables	No. of cases	Median survivals (mo)	P value
Age	< 60/ 60	18/ 13	22/ 10	0.026
Sex	M/F	17/ 14	13/ 22	0.175
T-Bil	<2mg/dL/2mg/dL	14/ 17	13/ 15	0.405
CEA	<5ng/mL/5ng/mL	11/ 5	13/ 21	0.598
CA 19-9	<37U/mL/37U/mL	9/ 15	14/ 8	0.647
Location	head/ body, tail	25/ 6	14/ 24	0.172
Mass size	2cm/ > 2cm	9/ 22	21/ 14	0.203
LN	negative/positive	14/ 17	24/ 10	0.014
Stage	I/II/III	10/ 4/ 17	44/ 13/ 10	0.019
Adjuvant tx *	yes/no	11/ 20	22/ 14	0.689

* radiotherapy, 3 cases; chemotherapy, 3 cases; radiotherapy+chemotherapy, 5 cases.

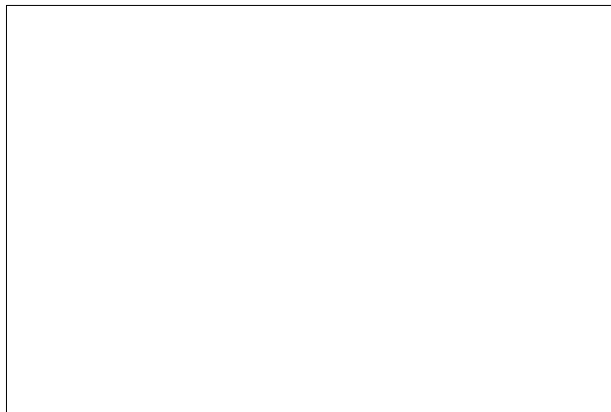


Fig. 4. Kaplan-Meier survival analysis of the effect on survival according to the lymph node involvement in patients with curative resection of pancreatic cancer. The patients without LN involvement show longer median survival time than those with LN metastasis significantly.



Fig. 5. Comparison of median survival time according to the stages in patients with curative resection of pancreatic cancer. There was significant difference among groups (stage 1 vs. 2 and 3, respectively)

, CEA, CA 19-9, (Table 3). Kaplan-Meier survival analysis of the effect on survival according to the lymph node involvement in patients with curative resection of pancreatic cancer. The patients without LN involvement show longer median survival time than those with LN metastasis significantly. (p=0.026)(Fig. 3), (p=0.014)(Fig. 4). (p=0.019)(Fig. 5).

4. 1 10 4 (40%) 16 80 . 3 , 1 , 2 1 가 , 2 . 3 17 1 , 1 15 . 31 6

Table 4. Recurrence Rate according to Stage after Curative Resection of Pancreatic Cancer

	Stage I (n=10) No. (%)	Stage II (n=4) No. (%)	Stage III (n=17) No. (%)	Total (n=31) No. (%)
Survival without recurrence	4* (40)	1 [†] (25)	1 [‡] (6)	6 (19.4)
Survival after recurrence	1 (10)		1 (6)	2 (6.5)
Death after recurrence	3 (30)	1 (25)	7 (41)	11 (35.5)
Death with clinically suspected recurrence	2 (20)	2 (50)	8 (47)	12 (38.7)

Median recurrence time was 10 months.

* 16-80 months.

[†] 36 months.[‡] 6 months.

(19.4%) 25 8-12% 3,4,6
(80.6%) ,
10 (Table 4).
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9 (69%) 가 , 가 8 가 6-11% 5,7,19-20
(62%), 가 7 (54%) .
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가 가
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1,2 1 16% 가
, 5 4% 가 .
1 , 2 , 3 , 4 32.3 ,
, 8.5 , 4.2 , 3.7 ,
1960 1980 19.4 1 1991
12,13 1996
가 1 , 2 , 3 44 , 13
10% 5% , 10
14-18 ,
19-24% 8,9
(R0 resection) 5 22-36% 가 2,1
가 7,10 가
5 6.8% , 22
가
5 23% ,
40% 31 5 12% 가 ,
가 14,23

[illegible]

31 25
10
69% 가
(61%), (54%) :

가

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